

Claims

1. A stent for insertion in a fluid conduit of the human or animal body when the stent is in a collapsed condition and for expansion to an expanded condition, the stent comprising an outer wall for engagement with the conduit, the outer wall having a helical portion which in the expanded condition extends longitudinally and circumferentially, and which, upon expansion of the stent from the collapsed condition to the expanded condition, resists extension.
2. A stent as claimed in claim 1, wherein the centre line of the stent in the expanded condition follows a substantially helical path.
3. A stent as claimed in claim 1 or 2, wherein the helical portion comprises an increased amount of stent forming material relative to the amount of stent forming material in portions of the stent adjacent to the helical portion.
4. A stent as claimed in claim 1, 2 or 3, wherein the helical portion comprises structural members having bent portions which resist unbending during expansion of the stent.
5. A stent as claimed in any of claims 1 to 4, being a self-expanding stent.
6. A stent as claimed in any of claims 1 to 4, being a balloon expandable stent.
7. A stent as claimed in any preceding claim, which in the expanded condition causes the fluid conduit to follow a non-planar curve as it extends in the longitudinal direction, said curve undergoing at least

- 29 -

one turn.

8. A stent as claimed in any preceding claim, wherein the stent expands from the collapsed condition to the expanded condition without substantial twisting.

9. A balloon expandable stent for insertion in a fluid conduit of the human or animal body when the stent is in a collapsed condition and for expansion to an expanded condition, the stent comprising a balloon having an expandable wall, the wall having a helical portion which in the expanded condition extends longitudinally and circumferentially, and which, upon expansion of the balloon from the collapsed condition to the expanded condition, resists extension.

10. A stent as claimed in claim 9, wherein the helical portion of the balloon expandable wall has a wall thickness greater than that of adjacent wall portions.

11. A stent as claimed in claims 9 or 10, which in the expanded condition causes the fluid conduit to follow a non-planar curve as it extends in the longitudinal direction, said curve undergoing at least one turn.

12. A stent for insertion in a fluid conduit of the human or animal body when the stent is in a collapsed condition and for expansion to an expanded condition, wherein in the expanded condition the stent causes the fluid conduit to have a flow lumen having a centre line which follows a substantially helical path, the helical centre line having a helix angle less than or equal to 65° and an amplitude less than or equal to one half of the internal diameter of the flow lumen.

13. A stent as claimed in claim 12, wherein the amplitude of the helical centre line divided by the

- 30 -

internal diameter of the tubing is at least 0.05.

14. A stent as claimed in claim 12 or 13, wherein the
stent, in the expanded condition, substantially free of
5 ribs which would project into the flow lumen of the
conduit.

15. A stent as claimed in claims 12, 13 or 14, wherein
the helix angle is less than or equal to 15°.

10

16. A stent as claimed in any of claims 12 to 15,
wherein the flow lumen of the stented conduit is of
substantially circular cross-section.

15

17. A stent as claimed in any of claims 12 to 16,
wherein the helical centre line of the stented conduit
extends over just part of the overall length of the
stent.

20

18. A stent as claimed in any of claims 12 to 16,
wherein the helical centre line of the stented conduit
extends over substantially the entire length of the
stent.

25

19. A stent as claimed in any of claims 12 to 18,
wherein the centre line of the stent follows a
substantially helical path about an axis which is
curved.

30

20. A stent as claimed in any preceding claim,
comprising a pharmaceutical coating.